these data, it results that the duration of one oscillation should be 47.45 minutes, as computed by the formula $T = \dfrac{2\,L}{\sqrt{gh}}$ where L is the length, h is the depth, and g the force of gravity, = 9.80596 meters. On the other hand, the arms at the southern end of the lake are not likely to take active part in the oscillation of the general mass, and Dr. Valentin thinks it more proper that we should omit their consideration, and adopt 165.6 meters as the mean depth of the remaining portion of the lake, whereby the computed period of oscillation becomes 43.01 minutes. Besides these simple or uninodal oscillations there are also observed binodal and even polynodal oscillations. The former are rather longer than one half of the principle oscillation, so that in general 19 binodal periods are synchronous with 10 uninodal, whence each one has a duration of 22.6 minutes. Oscillations of about 30 minutes and 15 minutes duration, that is to say two-thirds and one-third of the principle oscillation, sometimes occur in connection with the longer or single oscillation. At the north end of the lake, the 30-minute seiche combines with the 43-minute seiche after a short time, while at the south end of the lake the uninodal seiche is maintained pure and simple. The 15-minute seiche, as well as the 30-minute, undoubtedly originates in attempts at oscillations perpendicular to the axis of the lake. In general, the oscillations in the surface of Lake Garda show not only periods that are multiples of the principle seiche, but also the first and second octaves and the two-thirds and one-third of the fundamental period corresponding to the first and second quint or fifth above the fundamental note in music. The analogy between the oscillations of lakes and of the tones of musical instruments is thus quite complete, since the fifth and upper fifth occur most frequently next after the octaves.

A record by the limnograph maintained by Valentin at Riva must be compared with the record of the Italian observers in the southern part of the lake before we can completely elucidate all the peculiarities of its oscillations. The result of the first four months of registration at Riva was sufficient to show that the average duration of the uninodal oscillations was 42.99 minutes, and the amplitude was on the average 20 or 30 millimeters, but had twice attained to 60 or 70 millimeters.

Dr. Valentin gives no suggestion as to the origin of these seiches, but it has been generally recognized that although sometimes due to earthquakes they are most frequently initiated by sudden blasts of wind or changes in barometric pressure.

COPIES OF PROFESSOR VERY'S MEMOIR ON ATMOSPHERIC RADIATION.

A memoir under the above title was published by the Weather Bureau as Bulletin G, serial number W. B. No. 221, Washington, 1900. There has recently been a call for a few copies of this bulletin, and, as the edition is entirely exhausted, the Editor would be glad to hear from any one who is willing to dispose of his copy.

EXTREMES OF TEMPERATURE AND PRESSURE IN MONTANA.

On November 18, Mr. C. W. Ling, Assistant Observer, Havre, Mont., reported:

The weather that has prevailed so far this month has produced record breakers both in the temperature and the atmospheric pressure for the month of November. The first and second days of the month were the *warmest* November days on record at this station for a period of twenty-four years. The high atmospheric pressure that prevailed on the 17th instant made an actual barometric reading of 28.09 inches and a reduced reading of 31.03 inches at 12 noon, which is the *highest* November reading on record here.

The minimum temperature this morning, —29°, was, with but two exceptions, the *coldest* on record here for the second decade of November.

COMPUTATION OF THE ALTITUDE OF MOUNT WHITNEY.

Under date of January 11, 1904, Prof. Joseph N. LeConte, of the University of California, says:

The Lone Pine railroad station is on the main line of the Carson and Colorado Railroad, and is on the eastern side of Owens River, close to the base of the Inyo Range. The town of Lone Pine is on the western side of the valley and on the western side of the river also. The distance between the two points is about three miles, and the railroad station bears about north 60° east of the town. I visited the railroad station last September and spent some time with Mr. McGrath, the division superintendent. His memory of the altitude of the rail at the station, namely, 3658 feet, was afterward corroborated in a letter from him to me after consulting the records of the survey at Carson City, Nev. Mr. Henry Gannett gives the same number in his directory of altitudes, evidently obtained from the same source. This, however, is not the altitude of the point occupied by Professor Langley in his determination of the height of Mount Whitney. There has never, to my knowledge, been a line of levels run between the two places, and the only determination of the height of the town that I have ever found is the one given by Captain Wheeler, namely, 3810 feet; this, however, is barometric.

There is a "railroad tangent" at Lone Pine station over 20 miles long. It is absolutely straight and nearly level. It would be easy to measure off a base line four or five miles long, and arrive at a good measure of the elevation of the mountain; this might be still further improved by simultaneous angles observed from the mountain and the station. Such a measurement would depend on the elevation of the rail, of course, but this I think can be checked up. A survey has been run from this point to Mojave on the line of the Southern Pacific near Los Angeles. If the results of this latter survey could be obtained, we would know better how much reliance to put on the figures 3658. It has long been a desire of mine to make this triangulation, for the angle of elevation is over 6° and the distance 15 miles only. But I could not put very much faith on the levels over 550 miles of such rough country.

Under date of January 16, 1904, the Director of the United States Geological Survey, says:

Regarding the relative elevation of the railway station near Lone Pine, Cal., and the barometric station in that town occupied by Professor Langley, the only information that I have been able to get is to the effect that the difference in elevation is slight, probably not exceeding 10 feet, the site of the town being the higher.

More to the purpose, however, is the fact that this office has run a line of levels from the sea through the San Joaquin Valley, and up the south fork of the Kaweah River to Farewell Gap, thence connecting by vertical angles with the summit of Mount Whitney obtaining, as a result, 14,434 feet. I do not consider this result as conclusive, inasmuch as the last link in the chain consists of a single vertical angle at a distance of 34 miles.

METEOROLOGY IN THE UNIVERSITIES AND NORMAL SCHOOLS.

We are pleased to note that the State University of Iowa, in its calendar for May, 1903, announces, on page 171, a course of lectures on meteorology, twice a week through one semester, by Prof. A. A. Veblen, the professor and head of the department of physics. In addition to this course, which is open to both undergraduates and graduates in the department of physics, the university requires for admission the general knowledge of meteorology contained in works on physical geography mentioned on pages 80–81 of the calendar, many of which have already been noticed in the MONTHLY WEATHER REVIEW. This is one of the few universities in the world that recognizes meteorology as a part of physics rather than of geography. Corresponding with this classification we understand that the lectures at Iowa City cover the applications of thermodynamics, hydrodynamics, and physics in general to the problems of the atmosphere, thus laying a solid foundation for the future progress of this science.

Prof. R. D. Calkins, Superintendent of the Department of Geology in the Central State Normal School, Mount Pleasant, Mich., states that—

Our students are all preparing to teach in the schools of Michigan. Various phases of the subject of geography are presented to all my classes. In all courses I put a special emphasis upon the weather and